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# SOIL SURVEYS

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.....valued tools for all land users

U. S. Department of Agriculture soil scientists are tirelessly probing, examining, and mapping the soils from one end of the United States to the other. In making soil surveys these men are performing a valuable yet little known service in the field of natural resources.

There are at least 70,000 different kinds of soil in the United States. Some are shallow and some are deep. Some are stony and coarse and some are not. Some are hard and others friable. Some are suited to grow crops and some are not. Some can safely support a housing development or an airport and others can't. A soil survey explores the limitations of land for specific uses. Increasing numbers of farmers, ranchers, foresters, engineers, urban planners, land appraisers, and others are using them in their work.

The Soil Conservation Service's 1,200 soil scientists are now mapping about 50 million acres each year. These men are backed by 200 laboratory scientists. More than 821 million acres--or more than a third of the Nation's land--have already been surveyed.

The soil scientist examines the soil to depths of several feet, noting the differences in color, stoniness, texture, thickness, and arrangement, and other features of the various soil horizons. He examines the landscape--its slope, erosion, geologic formation, and vegetation along with its present use and behavior.

The scientist assembles his notes in handbooks and technical guides. He groups the soils into practical classes according to their capabilities for use in farm conservation planning. In addition, he sends soil samples to the laboratory for further study. The soil survey provides the base for nearly every other phase of the Soil Conservation Service program. But the applications of the survey do not stop there. Engineers and many others in industry and agencies of national, state and local government are making increased use of them.

A soil scientist's interpretation of his survey includes yield estimates of cultivated crops, grasses, and trees that can be produced under certain systems of management. The published survey is also used to make soil and land use studies for selecting and developing industrial, business, residential, and recreational sites, for locating probable sources of gravel and other construction material, for evalu-



A soil scientist is an outdoorsman. His tool of trade is the soil auger with which he probes the land, acre by acre, to determine its proper uses. Ore-75055

ating soil and ground conditions for highways, airports, and pipelines, and for making preliminary estimates of the soils in planning agricultural drainage systems, farm ponds, irrigation systems, and diversions terraces.

The completed soil survey for an entire county is published. Copies are sent to all agencies that helped or have need of the report. It goes to farmers, ranchers, foresters, county agents, land developers, real estate offices, highway engineers, libraries, sanitation boards, and fish and game officials--in fact to all who work with the land.



## Soil Survey Uses

Soil surveys hold the key to proper land management and are used primarily by the private land owners--the farmers and ranchers of the Nation--to determine the proper cultivation and conservation measures for their land. But there are other important uses.

Recently the city of San Antonio, Texas, had SCS soil scientists prepare a specialized soil study for the metropolitan area for which the city contributed \$8,900. This survey information was first used to reroute a natural gas pipeline to avoid unfavorable soils. The savings in this move alone amounted to twice the cost of the special survey work.

Stamford, Connecticut, city officials were willing to abandon their plan to make a 30 acre swamp into a dump if residents could come up with a better idea. Using a soil survey, the local soil conservation district came up with and sold the officials on the idea of converting the swamp into a recreation area.

SCS conservationists designed wildlife ponds and a drainage ditch to drop the water level slightly to permit walking. The City Park Commission built three ponds and stocked them with fish. Stamford residents now use the recreation area, developed for only \$4,500, for fishing, skating, hiking and just relaxing.

Unfortunately soil surveys are not used to their full extent. Homes are still built on poor soils that result in wet basements and cracked walls. An eastern school board let contracts for a \$1.3 million school to be built on a 25 acre tract the board had purchased. The builder found poor footing conditions and the contract for stabilizing the foundation ran an additional \$230,000. A study of the soils on the site later showed that the building could have been constructed on solid ground a few hundred feet away.



Soil survey parties can turn up almost anywhere. Here SCS soil scientists use pack horses to cover the rugged terrain of Alaska. Aa-76



The land holds many secrets, some of which can only be discovered by studying the soil profile to a depth of several feet. Wn-90254

Samples sent to the lab are analyzed to determine the physical and chemical properties, and used to further the understanding of soil origin and development. Md-30325





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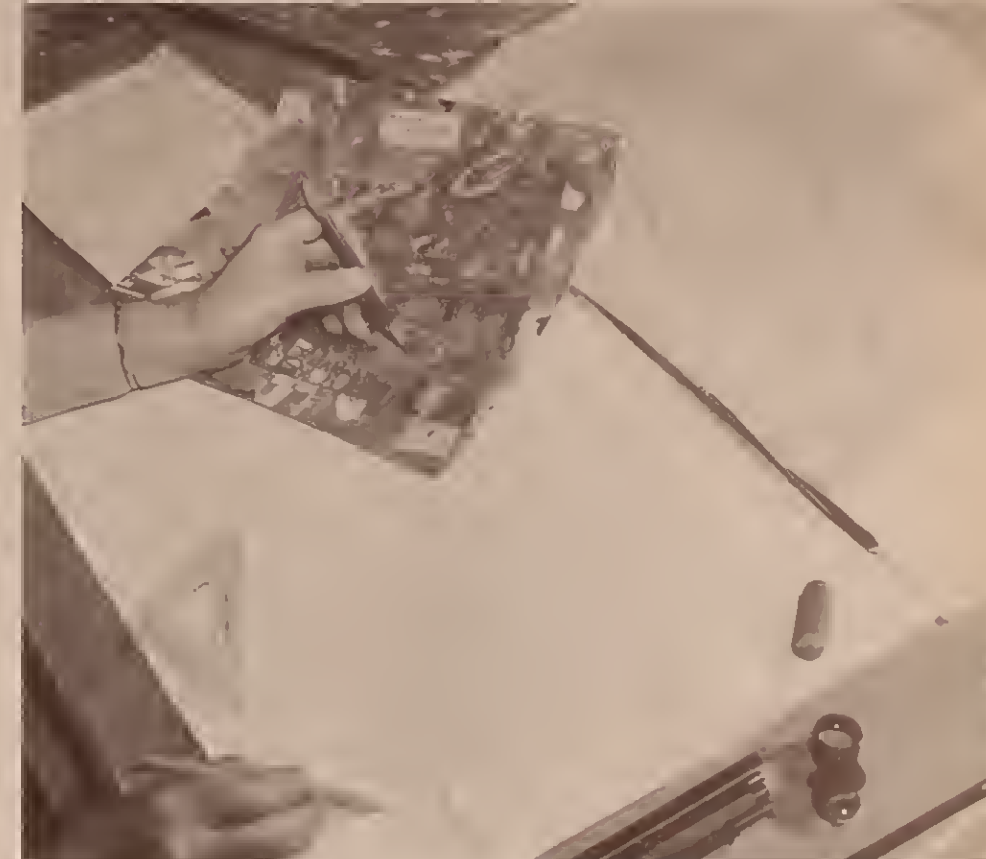
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Soils information is mopped in the field on aerial photographs. The soil type can and often does change several times on a single farm. Lo-62755



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In the SCS cartographic division, information from the soil scientist's field sheet is transferred to a soil map. When an entire county has been surveyed, this report is published and made available to those who have use for it. Md-30326





The primary users of the soil survey information are the Nation's farmers and ranchers. The survey forms the basis of the soil and water conservation farm plan used in planning crop selection and management practices. Ma-1980

Structures built on unstable soils quite often suffer irreparable damage. The use of soil surveys aid in avoiding this type of soil for residences and other buildings. Bn-12938-x



Soil surveys tell contractors what lies beneath the surface, how well the soils drain, and their ability to absorb water. They aid in planning terraces, like that being constructed above, and most other projects involving earth moving. Sd-588